

STORAGE

FAQ

Q I've heard that there are faster versions of USB and FireWire coming, so should I wait before buying a new external hard disk?

A Faster versions of USB and FireWire are in development. USB3 actually has a theoretical speed of 4,800Mbit/s, compared to USB Hi-Speed, which has a maximum speed of 480Mbit/s.

A faster version of FireWire, currently unnamed, won't be quite as fast at 3,200Mbit/s but will use the same cables as FireWire 800. It's impossible to say whether USB3 will be faster than the new FireWire until we can run tests on devices.

If you need an external hard disk, you shouldn't wait for models with these new interfaces to appear before buying one. They won't be available until 2009 or 2010 at the earliest. If you need more speed in the meantime, consider an eSATA disk, which currently has the fastest interface.

Alan Lu

PC systems and storage expert

alan@computersshopper.co.uk



SYNOLOGY Disk Station DS508

★★★★★

£658 inc VAT

From www.xspo.co.uk

EXCLUSIVE

Synology's brand-new Disk Station DS508 may be the most expensive NAS device we've reviewed, but it's also the best. It's smaller than you might imagine, being only a little larger than the five 3½in SATA disks that it houses. The case itself looks businesslike with its plain black finish.

Unlike previous Synology products we've reviewed, the DS508 has quick-release drive bays, which makes it a lot easier and quicker to install disks. They're hot-swappable for easy replacement or addition, and lockable for security.

Around the back, you'll find two USB ports for external disks or a printer, plus an eSATA port for the latest hard disks. Conveniently, the power supply is built in, so there's no unsightly black brick to find a home for. There's not one but two gigabit Ethernet ports for access from different networks. In a future firmware update, Synology has also promised failover (in case one port should fail) and teaming modes (for increasing the available bandwidth).

One of the main criticisms we've levelled at NAS products in the past is poor file-transfer speeds, but the DS508 is by far the fastest we've seen. Most people will configure the DS508 using all five disks in a RAID 5, since this provides the extra performance of striping as well as the security of each disk holding parity information. You can create multiple RAID 0 or RAID 1 volumes if you prefer.

With all five disks in a RAID 0, the DS508 wrote large files at 40.4MB/s and read them at an



astonishing 53MB/s. These speeds became 34.7MB/s and 50.1MB/s respectively when using RAID 5. Small file transfers were slow, though, at around 1MB/s for writes and under 3MB/s for reads in both configurations.

Managing the DS508 is easy thanks to the new AJAX-based interface. It has more features than we've ever seen on a NAS device and supports everything business users need, including Windows ADS, Samba, FTP and AFP support. If needed, it's also easy to set individual user account size limits and give users and groups read or write permissions to shared folders.

There's much more, including secure FTP, a web server with PHP and MySQL, encrypted network backup, HTTP file access and even the brand new Surveillance Station, which acts as a network video recorder for IP cameras. There are so many features that there isn't room here to list them all. You can see our longer review with full test results at <http://tinyurl.com/6ombls>.

At this price, the DS508 begins to tread on the toes of entry-level Windows 2003 servers. Also, it doesn't include any hard disks. Still, its dual LAN ports, many features and superb large file performance mean it's well worth the outlay.

Jim Martin

SUMMARY

- ✓ Excellent large file performance
- ✓ Hot-swappable drives in RAID 5
- ✓ Masses of features

NETWORK-ATTACHED STORAGE 2x 10/100/1,000Mbit/s network connections, 512MB RAM, 3x USB ports, eSATA port, FTP server, print server, web server, HTTP file server, UPnP media server, iTunes server, network video recorder, takes up to five 1TB 3½in SATA hard disks, 203x242x177mm, two-year return-to-base warranty
POWER CONSUMPTION 55W on
PART CODE DS508
DETAILS www.synology.com

PERFORMANCE (see page 64)



Also consider...

IOMEGA eGo USB 250GB

★★★★★

£93 inc VAT

From www.misco.co.uk

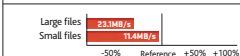
**COMPUTER SHOPPER
BEST BUY**

The eGo USB 250GB is a similar size and shape to a hip flask. Its rigid metal case feels strong, and it comes in a variety of colours. It performed very well in our file transfer tests, where it was one of the fastest USB portable disks we've seen.

EMC's useful Retrospect Express HD backup software is included. The eGo is great value at just 40p per gigabyte. It's a Best Buy.



PORTABLE EXTERNAL HARD DISK 250GB capacity, USB Hi-Speed interface
PART CODE 34161
DETAILS www.iomega-europe.com **FULL REVIEW** June 2008



CORSAIR Flash Voyager 4GB

★★★★★

£16 inc VAT

From www.microdirect.co.uk

**COMPUTER SHOPPER
BUDGET BUY**

The Flash Voyager 4GB is one of the cheapest 4GB flash drives we've reviewed. It costs a reasonable £4.81 per gigabyte. The outer casing is made of rubber and should absorb any bumps or shocks. Unfortunately, there's nowhere to stow the rubber cap when detached, which means it's easy to lose.

The Voyager performed very well in our photo files test, and it delivered respectable speeds in all others. It's a great choice if you need something durable and inexpensive.



USB FLASH DRIVE 4GB capacity, USB Hi-Speed interface
PART CODE CMFUSB2.0-4GB
FULL REVIEW May 2008



HITACHI Travelstar 5K500

★★★★

£160 inc VAT

From www.kikatek.com

Laptop hard disks have always been smaller than their desktop counterparts, but capacities are steadily increasing. Hitachi's Travelstar 5K500 is the first to have an impressively large capacity of 500GB, which is just as large as all but the most gargantuan desktop disks.

Unlike some laptop hard disks, the 5K500 had no effect on the battery life of our test laptop. In fact, the laptop lasted nine minutes longer in our light-use benchmark with the 5K500 fitted. However, the disk wasn't as consistently fast as Western Digital's smaller Scorpio 250GB (see 'Also consider...' below). The 5K500 copied large files quickly, but it couldn't keep up with the Scorpio when transferring small files.

Sadly, this hard disk won't fit in most laptops. Most laptop hard disks are 9.5mm tall, but the 5K500 measures 12.5mm, since it crams three 166GB platters into its small frame. The extra 3mm doesn't sound like much, but most laptop hard disk bays won't accommodate it. Chunky desktop-replacements are more likely to have the space than slender ultra-portables, so consult your laptop's manufacturer.

We were excited by the 500GB of mobile storage, but this hard disk is really a teaser of what's to come when manufacturers shoehorn 500GB into a 9.5mm package. It's good value at 34p per gigabyte, so if it will fit in your laptop it's the only way to get this much storage in a single internal disk.

Alan Lu

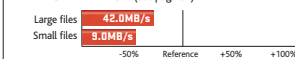


SUMMARY

- ✓ Large capacity
- ✗ Won't fit in most laptops
- ✗ Sluggish small-file performance

SATA HARD DISK 500GB hard disk, 465GB formatted capacity (NTFS), SATA/300 interface, 5,400rpm spindle speed, 8MB cache, 12ms seek time, 24dB(A) claimed noise when idle
PART CODE HTS545050KTA300
DETAILS www.hitachigst.com

PERFORMANCE (see page 64)



PIONEER DVR-215

★★★★★

£22 inc VAT

From www.microdirect.co.uk

The DVR-215 is Pioneer's latest internal SATA DVD writer. This is the black version of the DVR-215, but silver and beige models are also available. We've been disappointed by the performance of previous Pioneer burners, but we were impressed by the writing speeds attained by the DVR-215.

It couldn't reach its claimed 20X, but it still performed extremely well when burning single-layer DVDs. It exceeded 11X, making it the fastest internal DVD writer we've seen in this test. It wasn't record-breaking when writing dual-layer DVDs (it couldn't

reach its stated 10X), but it was still among the fastest DVD writers we've seen.

Unfortunately, the DVR-215 is noisier than most DVD writers, especially at the beginning and end of each burn. It's an OEM drive, so it doesn't come with any software or accessories, but this is forgivable given its low price.

It's a great DVD writer, but Samsung's SH-S202 is quieter, has comparable performance and costs only £2 more from www.aria.co.uk.

Alan Lu

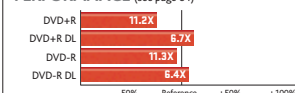


SUMMARY

- ✓ Fast burning speeds
- ✓ Inexpensive
- ✗ Can be noisy

INTERNAL DVD WRITER 20X DVD-R, 20X DVD+R, 6X DVD-RW, 8X DVD+RW, 10X DVD-R DL, 10X DVD+R DL, 12X DVD-RAM, 40X CD-R, 32X CD-RW, 16X DVD, 40X CD, SATA/150 interface
PART CODE DVR-215BK
DETAILS www.pioneer.eu

PERFORMANCE (see page 64)



WESTERN DIGITAL Scorpio 250GB

★★★★★

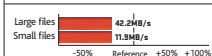
£63 inc VAT

From www.lambda-tek.com/componentshop

Western Digital's Scorpio 250GB is one of the roomiest laptop disks around, rivalling the capacity of some desktop disks. It is also one of the fastest 2½in disks we've seen. It didn't reduce the battery life of our laptop, unlike some other 2½in disks.

This is the best laptop hard disk we've seen. However, it won't fit older notebooks because it uses a SATA rather than a PATA connection.

2½in INTERNAL HARD DISK 250GB capacity, 232GB formatted capacity (NTFS), SATA interface, 5,400rpm spindle speed
PART CODE 3384-5628
DETAILS www.westerndigital.com
FULL REVIEW Jan 2008



PRICE CUT!

WESTERN DIGITAL Caviar SE16 500GB

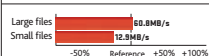
★★★★★

£68 inc VAT

From www.lambda-tek.com/componentshop

Motherboard and hard disk manufacturers may be phasing out PATA in favour of SATA, but you can still buy PATA hard disks. Western Digital's 500GB internal PATA hard disk is our pick if your computer's motherboard doesn't have any SATA ports. It performed well in both our large and small files tests, and is good value at 16p per gigabyte.

PATA HARD DISK 500GB hard disk, 465GB formatted capacity (NTFS), PATA/100 interface, 7,200rpm spindle speed, 16MB cache, 10.9ms seek time, 29dB(A) noise when idle
PART CODE WD5000AAKB
DETAILS www.westerndigital.com
FULL REVIEW Apr 2008



HITACHI Deskstar 7K1000 HDS721075KLA330

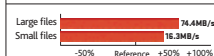
★★★★★

£106 inc VAT

From www.dabs.com

Hitachi's 750GB Deskstar has a very low cost per gigabyte of just 15p. It was very fast in our small files tests and performed respectably in our large files tests. Unlike many SATA hard disks, it has both SATA and molex power connectors, so you shouldn't need converters. With its great performance and low price, this is one of the best 3½in hard disks around.

SATA HARD DISK 750GB hard disk, 698GB formatted capacity (NTFS), SATA/300 interface, 7,200rpm spindle speed, 32MB cache, 8.5ms seek time, 32dB(A) noise when idle
PART CODE HDS721075KLA330
FULL REVIEW Apr 2008



IOMEGA
Portable Hard Drive 320GB
★★★★
£106 inc VAT

 From www.lambda-tek.com/componentshop

Iomega's latest USB Portable Hard Drive has a large formatted capacity of 298GB. It looks smart, but doesn't feel as robust as Iomega's eGo (see 'Also consider...', page 50).

This drive performed well when copying large files, but was sluggish when transferring small files. The eGo was consistently fast in both tests. Also, no backup software is included, while the eGo is bundled with EMC's Retrospect Express utility.

The Portable Hard Drive is inexpensive at 36p per gigabyte. However, unless you're on a tight budget, we'd recommend Buffalo's MiniStation (*Labs, Shopper 244*) if you need a portable hard disk. It's faster, comes with Memo's AutoBackup software and costs just £11 more. The 250GB eGo is also worth considering. It might cost 4p more per gigabyte than the two 320GB disks, but its superior performance and software make it good value.

Alan Lu


SUMMARY

- ✓ Low cost per gigabyte
- ✗ Disappointing small files performance
- ✗ No backup software included

PORTABLE EXTERNAL HARD DISK 320GB
capacity, 5,400rpm spindle speed, USB Hi-Speed interface, 23x82x136mm, one-year return-to-base warranty
PART CODE 34229
DETAILS www.iomega-europe.com

PERFORMANCE (see page 64)

LACIE
30GB Little Disk
★★★
£79 inc VAT

 From www.play.com

LaCie's Little Disk has a 30GB capacity. Its small size is thanks to the use of a tiny 1in hard disk, compared to the larger 2.5in hard disks used by many other portable hard disks.

Unfortunately, LaCie's 30GB USB Key Max (*What's New, Shopper 243*) is superior in almost every respect. The Key Max was twice as fast as the Little Disk when copying large files and was 1MB/s faster when transferring small files. The Key Max is also just as small and convenient as the Little Disk. Plus, the detachable cap for the Little Disk's USB connector is easily lost, while the Key Max has an integrated USB cable.

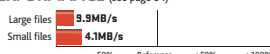
Both the Little Disk and the Key Max have a high cost per gigabyte of £2.82. If you need this sort of capacity for your pocket, both are better value than USB flash drives. However, the Key Max is the better buy.

Alan Lu


SUMMARY

- ✓ Very portable
- ✗ Disappointing performance
- ✗ High cost per gigabyte

PORTABLE EXTERNAL HARD DISK 30GB
capacity, 3,600rpm spindle speed, USB Hi-Speed interface, 17x43x67mm, two-year return-to-base warranty
PART CODE 301820
DETAILS www.lacie.com

PERFORMANCE (see page 64)

**CHOOSING A...
NAS
Device**

Follow the steps to find your ideal specs

CAPACITY: 250GB

INTERFACE: 100/1,000Mbit/s Ethernet

Recommended minimum in grey

1 A basic network-attached storage (NAS) device with the specifications above will cost around £100. It has only a single hard disk, so you'll need to make backups to protect your data, and you can't upgrade its storage capacity.

Its Gigabit Ethernet interface means that it transfers data quickly, although to use it at this speed you'll need computers with Gigabit Ethernet network adaptors and a Gigabit Ethernet switch or router. Computers with 10/100 adaptors will still be able to access the NAS device, but at just 100Mbit/s.

2 The amount of network storage you need depends on the types of files you use. If you want to store Word and Excel documents, for example, a 250GB device will be more than enough. If you intend to store DVD-quality video, on the other hand, you'll need much more. A single uncompressed DVD image can take up to 8.5GB of data, so even a modest media collection will require around 500GB of storage space.

3 If you can see no end to your storage needs, consider buying an upgradable NAS device. Many have a USB port so you can add a second, external disk.

Devices such as Synology's barebones NAS kits with spare disk trays allow for cheaper and faster upgrades in the future.

4 If you want extra protection for your data, look for a device that supports RAID. A RAID 1 or RAID 5 array reduces the available capacity, but if one disk fails then your data remains safe.

5 If you need access to your files while you're away from home or the office, look for a NAS with an FTP server. Some NAS devices can share a USB printer across your network, saving you the expense of a buying an Ethernet printer. A NAS device with a Universal Plug and Play (UPnP) media server can stream your music, photos and videos to a network media player, so you can enjoy your media collection in another room.

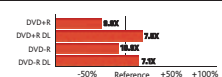
Also consider...
LG
GSA-E50N
★★★★★
£53 inc VAT

 From www.kikatek.com
**COMPUTER SHOPPER
BEST BUY**


LG's GSA-E50N portable DVD writer costs less than £50, but still looks sleek.

It performed well in all our tests. It can also password-protect discs using the included copy of Nero. Files are still visible in Windows Explorer, but can't be opened without a downloadable utility and your password.

EXTERNAL DVD WRITER 8X
DVD-R, 8X DVD+R, 6X DVD-RW, 8X DVD+RW, 6X DVD-R DL, 6X DVD+R DL, 5X DVD-RAM, 24X CD-R, 24X CD-RW
PART CODE GSA-E50N
DETAILS <http://uk.lge.com>
FULL REVIEW Feb 2008


LG
GGW-H20L
★★★★★
£152 inc VAT

 From www.lambda-tek.com/componentshop
PRICE CUT!


LG's GGW-H20L can play both HD DVD and Blu-ray discs, so it is ideal for a media centre PC. It was fast at writing BD-R discs but not rewritables. If you don't need to burn to Blu-ray then get the GGC-H20L, which is the same drive but costs just £80 including VAT – a huge bargain.

BLU-RAY WRITER/HD-DVD ROM DRIVE 6X BD-R, 2X BD-RE, 4X BD-R DL, 2X BD-RE DL, 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 4X DVD-R DL, 4X DVD+R DL, 5X DVD-RAM
PART CODE GGW-H20L
FULL REVIEW May 2008

